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Current Support Brief

USSR ACCELERATES PLANS TO ACHIEVE SELF-SUFFICIENCY IN RUBBER



CENTRAL INTELLIGENCE AGENCY
Office of Research and Reports

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USSR ACCELERATES PLANS TO ACHIEVE SELF-SUFFICIENCY
IN RUBBER

Information from a recently obtained Soviet text on the synthetics industry 1/ suggests that the USSR may have modified its plans through 1965 for development of synthetic rubber capacities* and will now place greater stress on increasing the over-all capacity of stereoregular synthetic rubber that may be used as a partial or complete substitute for natural rubber.** The change, if confirmed, is a significant one, for although natural rubber probably will still comprise a sizable portion of total Soviet rubber requirements in 1965, the apparent change may mean that a Soviet decision has been made to hasten the attainment of virtual self-sufficiency in rubber. A recent Soviet article supports this conclusion with an indication that by the end of the Twenty Year Plan (1960-80), synthetic rubber is scheduled to account for 90 to 95 percent of the total quantity of rubber required for production of tires and rubber technical articles. 2/

For the past several years, efforts have been underway, in both the USSR and the Industrial West, to develop new types of synthetic rubber with properties similar to or even superior to those of natural rubber. These rubbers include polyisoprene, polybutadiene, and ethylene-propylene copolymers, with the first two types currently attaining commercial importance in the US. Until recently, the USSR placed major emphasis on the development of polyisoprene. The Soviet Seven Year Plan (1959-65) called for polyisoprene rubber to account for about one-fourth of the total output of synthetic rubber in 1965.*** Past progress of the USSR in attaining commercial production of polyisoprene, however, has been modest. An experimental unit producing polyisoprene (SKI) went into operation at Voronezh in

*It is not known whether or not the change in planned capacities of individual types of rubber called for by the end of 1965 was accompanied by a change in the planned level of total production in 1965.

**Although previously developed synthetic rubbers also serve as substitutes for natural rubber in many applications, the new stereoregular rubber may be used in some important areas where natural rubber has previously been preferred.

***Recent information suggests that the plan applies to planned capacities rather than planned production. A Soviet table on the percentage of various intermediates to be used in production of synthetic rubber in 1965 reveals that isoprene is to account for only 11 percent of the total intermediates used. 3/

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1955.* The product apparently was not entirely satisfactory, and in March 1960 the USSR reported development of a new polyisoprene (SKI-3). 4/ In August 1960, however, a Soviet article contained the admission that the problem of production of polyisoprene rubber had not been solved. 5/ In August 1961, development of a new continuous process for production of polyisoprene was reported at an institute in Leningrad, with the process allegedly permitting production at one-fifth of the cost of other Soviet processes then available. 6/ The magnitude of the reduction in cost suggests that previously developed processes were quite inefficient, a possible explanation of the Soviet delay in attaining commercial production.

Recently, increased interest has been evinced by the USSR in development of stereoregular polybutadiene, a rubber that Western experience has demonstrated to be very effective in heavy duty tires because of its low heat buildup and because it reportedly also possesses excellent low-temperature properties. Both advantages would be significant in the USSR, where heavy duty tires account for about 80 percent of the total output of tires and where winter climatic conditions are frequently severe. In spite of the obvious advantages of this rubber, the Soviet Seven Year Plan contained no reference to the future production of polybutadiene. Production of polybutadiene, however, was subsequently reported to have begun at a plant in Yaroslavl' in December 1961,** 7/ and the recently obtained Soviet text reveals that polybutadiene is now scheduled to comprise about 13 percent of total Soviet synthetic rubber capacities by the end of 1965.*** 9/ At the same time, Soviet production of the inferior sodium-butadiene rubber, originally scheduled to drop from about 50 percent of total synthetic rubber capacity in 1958 to almost 9 percent by the end of 1965, is now to be phased out completely by the end of 1965. The combined capacities of polybutadiene and polyisoprene are scheduled to exceed those of the

*Production of isoprene was reported at a plant in Yefremov in 1954, but it is not certain whether or not the polymerized product, polyisoprene, also was produced at that time.

**The installation producing polybutadiene at Yaroslavl' is apparently experimental, and in May 1962 it was reported that modernization of the polybutadiene shop was lagging, so that output to date has probably been small and may even have been discontinued, pending modifications. 8/

***See the table for the earlier and later versions of the planned changes in production capacities for the various Soviet synthetic rubbers between 1 January 1959 and 1 January 1966.

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general-purpose types of butadiene-styrene rubber by the end of 1965, although actual production of the latter types in 1965 should still exceed that of the stereorubber types. After 1965, no new capacities for production of types of butadiene-styrene rubber reportedly are to be introduced in the USSR, 10/ a clear indication that stereoregular rubbers are to become the major Soviet general-purpose types.

Increased production of stereoregular rubber in the USSR will unquestionably affect Soviet purchases of natural rubber from the underdeveloped countries, particularly after 1965. Presumably the USSR will be in a position either to decrease imports of natural rubber or at least to refrain from increasing the level of such imports. In recent years, Soviet purchases of natural rubber have become a significant factor in the world rubber market. In 1961 the USSR imported about 330,000 metric tons* of natural rubber, about 16 percent of world production. The large imports in 1961 may partly reflect Soviet efforts to convert existing rubber plants to production of polybutadiene rubber, a conversion that presumably could temporarily result in a lower level of production at the plants affected. It must be noted, however, that the large imports of natural rubber probably were chiefly the result of the general lag in introducing new capacities for several types of synthetic rubber, including butadiene copolymers and butyl and nitrile rubber. A Soviet article admitted in 1962 that several new rubber plants which went into operation in 1959-61 had failed to achieve their planned capacities because of technological errors in planning the processes. 12/

In spite of the apparent Soviet intention to place greater emphasis on production of stereoregular rubber, Soviet plans still call for natural rubber to comprise 24 percent of the total quantity of rubber used in tires in 1965, 13/ thus suggesting that a minimum of perhaps 140,000 metric tons** of natural rubber will be required in that year. Actual imports could considerably exceed this figure if natural rubber is planned for other applications as well or if present difficulties in introducing new capacities persist.

*Computed from estimates of the International Rubber Study Group. 11/

**This figure is based on the reported Soviet plan to produce 29 million tires in 1965 and on an estimate that about 20 kilograms of new rubber are used in the average Soviet tire.

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Table

Planned Changes in Production Capacities for Soviet
Synthetic Rubbers
1 January 1959 and 1 January 1966

	Percent of Capacity			
	Early Version of Soviet Plan a/		Apparent Soviet Modifi- cation of Original Plan a/	
	1 Jan 59	1 Jan 66	1 Jan 59	1 Jan 66
Polyisoprene (SKI)		25.0		23.6
Polybutadiene (SKD)				12.6
Copolymers of butadiene and styrene (SKS, SKMS)	38.3 b/	43.6 b/	39.1	34.0
Sodium-butadiene (SKB)	50.7	8.5	50.1	
Chloroprene (NAIRIT)	6.4	11.7	6.4	11.1
Butyl	0.4	5.3	0.3	4.9
Nitrile (SKN)	3.8	2.9	2.3	2.7
Polyisobutylene	0.4	1.3		
Latexes			0.9	5.0
Others		1.7	0.9	6.1

a. The early version of the Seven Year Plan (1959-65) appeared in a Soviet journal on the rubber industry published in October 1958, 14/ and the data were repeated in a Soviet text published in late 1960. 15/ The later version of the plan was published in 1961, 16/ and some of the changes (for example, the inclusion of polybutadiene and the different statistics for sodium-butadiene and styrene-butadiene copolymers) appear to reflect a significant revision in the plan. Other more modest changes are believed to result from slight differences in definition (for example, isobutylene, a separate category in the early version, apparently went into the category "others" in the more recent version) or to official data becoming available for the capacities existing as of 1 January 1959.

b. Including latexes.

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DECLINE IN GROWTH RATE OF SOVIET LIGHT INDUSTRY



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DECLINE IN GROWTH RATE OF SOVIET LIGHT INDUSTRY

The increased emphasis on providing the Soviet consumer with manufactured goods that developed under sponsorship of Khrushchev and flourished during 1958-59 has seriously declined. Plan fulfillment reports for light industry at mid-1962 show only slight improvement over a poor performance in 1961. The growth rate for production of cotton fabric showed some improvement, although gains still are insufficient to meet the goal of the Seven Year Plan (1959-65), and the growth rate for leather footwear declined. Problems which began to emerge in light industry during 1960 -- shortages of raw materials and machinery, labor troubles resulting from the shortened work day, and failure to bring new capacity into production -- have worsened until the industry is now growing at a rate far below that required to meet the 1965 goals. In the first half of 1962, output of light industry as a whole reportedly increased 4 percent over the corresponding period in 1961, whereas increases exceeding 6 percent are required by the Seven Year Plan.

Light industry, which produces by far the largest share of goods consumed by the Soviet public (excluding food), has registered declining growth rates since 1959, the sharpest decline occurring in 1961. Growth rates since the beginning of the Seven Year Plan, expressed as percentage increases over the output of the previous year, are compared with scheduled annual growth rates for the Seven Year Plan as follows:

<u>Commodity</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>First Half a/ 1962</u>	<u>Planned Average Annual Increase</u>
Cotton fabric	7.1	4.8	0.7	2.0	4.2
Wool fabric	7.7	5.6	3.9	3.0	7.4
Silklike fabric	decrease ^{b/}	1.9	1.2	8.0	8.4
Linen fabric	10.2	6.5	decrease ^{b/}	decrease ^{c/}	4.0
Leather footwear	9.4	7.5	5.5	4.0	5.4
Sewn garments	10.5	6.9	5.6	6.0	8.8

a. Percentage increase over the first half of 1961.

b. Production was 96 percent of previous year.

c. Production was 98 percent of previous period.

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Khrushchev, in what was apparently a sincere effort to narrow the gap between consumption in the USSR and Western countries, was characteristically over-optimistic, and his efforts to improve the consumer's lot have fallen far short.

Prior to the 22nd Party Congress, Khrushchev had indicated his desire to equalize the rates of growth for heavy and consumer industries, but the decisions of the Congress in October 1961 clearly gave the edge to heavy industry with the further warning that necessary military expenditures might trim the program even more if "complications in the international situation" should so demand.

In addition, there are difficult problems within the industry. Light industry is in desperate need of modernization and technological improvement, a fact that is basic to further growth. Furthermore as a result of agricultural failures, shortages of textile fibers are hindering production in some parts of the industry. The workday has been shortened from 8 to 7 hours, with the probable addition to the labor force of numbers of unskilled workers. In the program for increasing capacity in light industry, a trend has developed toward the expansion and modernization of existing plants as a means of limiting the need for new construction, but the machine building industry has failed to provide machinery, equipment, and spare parts in sufficient quantity. New processes cannot be successfully worked out because of the lack of resources, technical skills, and fully coordinated programs of development. Pressures by the public to improve quality and assortment are mounting, and consumer resistance is creating troublesome surpluses of unsalable goods.

These factors constitute a tremendous burden for an industry still charged by Khrushchev with meeting the growing demands of an increasing population.

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